

# GROWING METHOD OF SEMICONDUCTOR, MANUFACTURE OF SEMICONDUCTOR SUBSTRATE, AND MANUFACTURE OF SEMICONDUCTOR DEVICE

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## Abstract of JP2000223417

**PROBLEM TO BE SOLVED:** To provide a method of growing a semiconductor, such as a nitride III-V compound semiconductor on a substrate that has a lattice constant and a thermal expansion coefficient, different from those of the semiconductor without producing warpage or fissures, and a method of manufacturing a semiconductor substrate and a semiconductor device by the use of this growing method of a semiconductor.

**SOLUTION:** In a semiconductor growing method, where a nitride III-V compound semiconductor such as a GaN semiconductor is formed on a substrate, such as a sapphire substrate formed of a material different from that of the compound semiconductor using a growing mask, a growing mask 4 which contains at least a pattern that is threefold or sixfold symmetrical is used as the growing mask. A pattern which is threefold symmetrical is a regular triangle, and a pattern which is sixfold symmetrical is a regular hexagon. In this way, a nitride III-V compound semiconductor thick layer is selectively grown, and then the substrate is removed by lapping or the like so as to obtain only the nitride III-V compound semiconductor layer, and a semiconductor device such as a GaN semiconductor laser is manufactured using the compound semiconductor layer as a substrate.

